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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,247	07/10/2001	Wouterus Muys	2-1-1	8271

7590 12/28/2004

Docket Administrator (Room 3J-219)
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[REDACTED] EXAMINER

MERED, HABTE

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2662

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/902,247	MUYS ET AL.	
	Examiner	Art Unit	
	Habte Mered	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07/10/01 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 12/19/2004.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities:

There are numerous references to "point-to-multipoint access network 1" in relation to the figure provided but there is no element labeled as 1 in the figure (Page 5, Lines 16, 24 and 27; Page 6, Line 7 and Page 7, Line 20)

The word "an" on page 3 line 10 needs to be replaced by "a".

"Brief Description Of the Drawings" is missing.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)),

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and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention

described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing: See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Appropriate correction is required.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are

required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-3, 7-11, and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumozaki et al (US 5, 539, 564), hereinafter referred to as Kumozaki.**

5. Regarding claim 1, Kumozaki discloses a point-to-multipoint optical communication system. See Column 1, Lines 6-10. The point-to-multipoint optical communication system is shown in Figures 13 and 15. In Figure 13, blocks 210 and 230 and in Figure 15 block 800 are optical couplers and therefore are optical distribution networks. See Column 18, Line 66; Column 19, Lines 9-11; and Column 20, Line 9. Blocks 110 and 120 are transceivers (i.e. units) of the line termination (block 101) at the central office in both figures 13 and 15. See Column 19, Lines 20-25 and Column 20, Line 17. The subscriber units (blocks 302 and 402 in Figure 13 and blocks 303 and 403

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in Figure 15) have elements 310, 320, 411 and 421 and the transceivers making up the plurality of network units. See Column 18, Lines 56-58 and Column 20, Lines 5-8.

Kumozaki describes how end-to-end protection is provided in the system. See Column 7, Lines 27-44. Kumozaki provides a protection switching method when one of the subscriber equipment malfunctions by means of switching to the functioning network unit. Kumazaki shows in Figure 13, when one of the transmitters (i.e. network units) fails, a switch is made to the functioning transmitter (i.e. network unit) using switching elements 330 or 430. See Column 18, Lines 53-58, Column 19, Lines 54-58, and Column 20, Lines 41-57.

6. Regarding claim 9, Kumozaki shows in Figure 13, a point-to-multipoint access network, where blocks 110 and 120 are two different units (i.e. first and second subscriber unit) of the line termination (block 101). The first unit (block 110) is connected to the first coupler (block 210), which is the first distribution network. The second unit (block 120) is connected to the second coupler (block 220), which is the second distribution network. End user equipment 302 is protected because it can be connected to network units 310 or 320 allowing it access to either the first or second distribution network. See Column 18, Lines 44-67.

7. Regarding claims 2, 10, and 17, the transceiver (i.e. network unit) converts electrical signal to optical signal and vice versa where in particular the down stream signal (D) is converted from optical to electrical. Kumozaki shows that in the transceiver (block 310 of Figure 15) the optical signal is converted to electrical signal. See Column 22, Lines 18-26. The subscriber equipment has therefore an electrical user network

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interfaces to interface with the transceiver (i.e. network unit) and are labeled as S3, R3, S4 and R4. S3 and S4 are input ports while R3 and R4 are output ports.

8. Regarding claims 3 and 11, Kumozaki teaches a Passive Double Star System which qualifies to be a passive optical network as a one having a passive optical device. The passive optical devices are the optical couplers in Figures 13 and 15 (blocks 210, 230 and 800). See Column 1, Lines 14-25.

9. Regarding claims 7 and 15, the spanning tree algorithm essentially provides path redundancy while preventing undesirable loops in the network and the applicant concurs with this definition as stated in the specification of the application on Page 7, Lines 8-12. Kumozaki's protection mechanism is based on a spanning tree algorithm, as there is no undesirable loop created when the protection switching is activated. In Figure 15, for instance end user equipment 303 is connected to two different transceivers (i.e. network units) 410 and 420 and two different line terminations in the central office 110 and 120 and is using 0th Path, without the chance of loop occurring. Whenever one of the optical network units or line terminations fails, subscriber equipment 303 will be able to receive service via the other physical path (1st Path) without any undesirable loop occurring. See Column 20, Lines 24-40.

10. Regarding claims 8,16, and 18, Kumozaki shows in Figure 1 a point-to-multipoint communication system. Kumozaki shows that there are two separate physical paths (0TH Path and 1ST Path) between the line termination (blocks 110 and 120) and the end user equipment (blocks 300,400, and 600) as part of a protection mechanism. Kumozaki

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teaches how the two paths can be operated in parallel to establish load sharing and still be part of the switching protection mechanism. See Column 10, Lines 4-11.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumozaki (US 5, 539, 564) in view of Karasawa (US 6, 735, 211).**

Regarding claim 4, Kumozaki discloses a point-to-multipoint communication system with a redundancy built in the system to provide end-to-end protection. Switching the section of the working transmission path to an alternate path and isolating the malfunctioning component provides the end-to-end protection.

Kumozaki, however, fails to disclose that the operating protocol over the point-to-multipoint access network is ATM.

Karasawa teaches an ATM-PON (ATM Passive Optical Network). Figure 1 is an example of an ATM-PON. Karasawa discloses ATM cell signal is transmitted in both upstream and downstream directions over the access network. See Column 1, Lines 16-20 and 30-35.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kumozaki's protection switching method in such a way as to apply it on an ATM-PON, the motivation being to extend the enhanced Quality of

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Service (QOS) ATM offers to the customer premises and help establish end to end QOS.

13. **Claims 5, 6, 13, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumozaki et al (US 5, 539, 564) in view of Masucci et al (US 6, 498, 667) hereinafter referred as Masucci.

Regarding claims 5, 6, 13, and 14, Kumozaki discloses a point-to-multipoint communication system with a redundancy built in the system to provide end-to-end protection. Switching the section of the working transmission path to an alternate path and isolating the malfunctioning component provides the end-to-end protection.

Kumozaki, however, fails to disclose that the access network can provide ethernet protocol based connection and the messages to initiate and activate the protection mechanism can be provided in the Ethernet layer.

Regarding claims 5 and 13, Masucci discloses an optical access system where, in Figure 1, block 34 is an Optical Passive Network (PON) and block 14 is a remote terminal (RT). See Column 1, Lines 29-34. The RT is at the customer premises and has network interfaces able to change optical signals to electrical signals and vice versa. See Column 4, Lines 30-33. Masucci shows that the RT, which is part of the access network, provides ethernet connection to support packet traffic over a 10/100 Base Ethernet link 33. See Column 4, Lines 36-45 and Column 5, Lines 9-14 and 22-27.

Regarding claims 6 and 14, Masucci discloses the data format used in the downstream portion of the PON as shown in Figure 3. Block 218 of Figure 3 is a portion

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allotted for OAM&P messages. See Column 7, Lines 31-33 and 45-50. Figures 4a, 4b and 5b show the data format when there is packet traffic over the ethernet connection. See Column 8, Lines 38-53 and Column 9, Lines 10-30. In Figure 8, Masucci shows that the OAM&P message has four bytes of header data and 40 bytes of message data. See Column 12, Lines 24-34. These OAM&P messages are sent between the RT and the line termination at the Central Office in both upstream and downstream directions. See Column 10, Lines 56-59 and Column 12, Lines 35-42. OAM&P messages processed over the ethernet connection for packet traffic are processed at the ethernet layer (Ethernet MAC, Figure 1 Block 30). See Column 5, Lines 9-14 and 22-27. Since protection switching is a maintenance activity, the OAM&P messages can be used to deliver information on optical path changes to the RT and eventually to the customer equipment in the ethernet layer.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kumozaki's protection switching method and access network in such a way as to extend the access network to provide ethernet connection and protection switching in the ethernet layer, the motivation being the need to integrate the PON to the ethernet as it is the most ubiquitous LAN technology.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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The following patent is cited to show the state of transport of management information for protection switching in ATM-PON:

US Patent (6,801497) to Van Driessche

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM



RICKY NGO
PRIMARY EXAMINER